

CLAIMS

1. - 69. (cancelled)

70. (new) An isolated and purified nucleic acid molecule consisting of a fragment of SEQ ID NO: 13, wherein said fragment comprises 10 or more nucleotides of the nucleotide sequence from position 586 to position 810 of SEQ ID NO: 13.

71. (new) The nucleic acid molecule of claim 70, wherein said fragment comprises 20 or more nucleotides from position 586 to position 810 of SEQ ID NO: 13.

72. (new) The nucleic acid molecule of claim 70, wherein said fragment comprises nucleotides 586 to 810 of SEQ ID NO: 13.

73. (new) A composition consisting essentially of an isolated and purified nucleic acid molecule consisting of a fragment of SEQ ID NO: 13, wherein said fragment comprises 10 or more nucleotides of the nucleotide sequence from position 586 to position 810 of SEQ ID NO: 13.

74. (new) The composition of claim 73, further comprising a nucleic acid molecule consisting of the nucleotide sequence of SEQ ID NOs: 56 or 57.

75. (new) An isolated and purified nucleic acid molecule primer consisting of a fragment of SEQ ID NO: 13, wherein said fragment consists of 10 to about 20 nucleotides

of the nucleotide sequence from position 586 to position 810 of SEQ ID NO: 13.

76. (new) A composition comprising the primer according to claim 75.

77. (new) A method of detecting an H11 or H35 serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under high stringency hybridizing conditions, with at least one nucleic acid molecule according to claim 70; and

(b) detecting any hybridized nucleic acid molecules wherein the presence of specifically hybridized nucleic acid molecules indicates the presence of serotype H11 and/or H35 *E. coli* in the sample.

78. (new) A method of detecting an H11 or H35 serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under high stringency hybridizing conditions, with a pair of nucleic acid molecules according to claim 70; and

(b) detecting any hybridized nucleic acid molecules wherein the presence of specifically hybridized nucleic acid molecules indicates the presence of serotype H11 or H35 *E. coli* in the sample.

79. (new) The method according to claims 77 or 78 wherein the hybridized nucleic acid molecules are detected by Southern Blot analysis.

80. (new) The method according to claim 78 wherein the hybridised pair of nucleic acid molecules are detected by the polymerase chain reaction.

81. (new) A method for detecting the presence of H11 or H35, and an O157 serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under high stringency hybridizing conditions, with at least one pair of nucleic acid molecules, wherein one of the pair is selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO:56),
wbdO (nucleotide position 2011 to 2757 of SEQ ID NO:56),
wbdP (nucleotide position 5257 to 6471 of SEQ ID NO:56),
wbdR (nucleotide position 13156 to 13821 of SEQ ID NO:56),
wzx (nucleotide position 2744 to 4135 of SEQ ID NO:56) and
wzy (nucleotide position 858 to 2042 of SEQ ID NO:56), and

the other one of the pair of nucleic acid molecules is specific for a flagellin gene of *E. coli* and consists of SEQ ID NO: 57;

(b) contacting the sample with a nucleic acid molecule according to claim 70, under high stringency hybridizing conditions; and

(c) detecting any hybridized nucleic acid molecules wherein the presence of hybridized nucleic acid molecules from step (a) signifies the presence of O157

serotype in the sample and the presence of hybridized nucleic acid molecules from step (b) signifies the presence of H11 or H35 serotype *E. coli* in the sample.

82. (new) A method for detecting the H11 or H35, and an O157 serotype of *E. coli* in a sample, the method comprising the following steps:

(a) contacting the sample, under high stringency hybridizing conditions, with at least one nucleic acid molecule derived from and specific for a gene involved in the synthesis of O157 O antigen, the gene encoding a transferase enzyme or an enzyme involved in the transport or processing of a polysaccharide or oligosaccharide unit wherein the nucleic acid molecule is selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO:56),
wbdO (nucleotide position 2011 to 2757 of SEQ ID NO:56),
wbdP (nucleotide position 5257 to 6471 of SEQ ID NO:56),
wbdR (nucleotide position 13156 to 13821 of SEQ ID NO:56),
wzx (nucleotide position 2744 to 4135 of SEQ ID NO:56) and
wzy (nucleotide position 858 to 2042 of SEQ ID NO:56),

(b) contacting the sample, under high stringency hybridizing conditions, with a nucleic acid molecule according to claim 70; and

(c) detecting any hybridized nucleic acid molecules wherein the presence of hybridized nucleic acid molecules signifies the presence of the O157 serotype from step (a) *E. coli* in the sample and the presence of hybridized nucleic acid molecules from step (b) signifies the presence of H11 or H35 serotype *E. coli* in the sample.

83. (new) The method according to claims 81 or 82 wherein the nucleic acid molecule of step (a) is a forward primer or a reverse primer selected from the group of

Forward primer (base position of SEQ ID NO:56)	Reverse Primer (base position of SEQ ID NO:56)
79-96	861-844
184-201	531-514
310-327	768-751
858-875	2042-2025
1053-1070	1619-1602
1278-1295	1913-1896
2011-2028	2757-2740
2110-2127	2493-2476
2305-2322	2682-2665
2744-2761	4135-4118
2942-2959	3628-3611
5257-5274	6471-6454
5440-5457	5973-5956
5707-5724	6231-6214
13261-13278	13629-13612
13384-13401	13731-13714

84. (new) The method according to claims 82 or 83 wherein the hybridized nucleic acid molecules are detected by Southern Blot analysis or by Polymerase Chain Reaction.

85. (new) The method according to claims 82 or 83 wherein the sample is selected from the group consisting of a sample derived from food, a sample derived from faeces and a sample derived from a patient or animal.

86. (new) A kit for identifying an H11 or H35 serotype of *E. coli*, the kit comprising

a nucleic acid molecule according to claim 70,
an isolated and purified nucleic acid molecule primer consisting of a fragment of SEQ ID NO: 13, wherein said fragment consists of 10 to about 20 nucleotides of the nucleotide sequence from position 586 to position 810 of SEQ ID NO: 13, or

a composition consisting essentially of an isolated and purified nucleic acid molecule consisting of a fragment of SEQ ID NO: 13, wherein said fragment comprises 10 or more nucleotides of the nucleotide sequence from position 586 to position 810 of SEQ ID NO: 13.

87. (new) A kit for identifying an H11 or H35, and an O157 serotype of *E. coli*, the kit comprising:

(a) a nucleic acid molecule according to claim 70; and
(b) at least one nucleic acid molecule selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),
wbdO (nucleotide position 2011 to 2757 of SEQ ID NO:
56),

wbdP (nucleotide position 5257 to 6471 of SEQ ID NO:
56),

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wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),
wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56)
and
wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56).

88. (new) The kit according to claim 87 wherein the nucleic acid molecule of (b) comprises a forward primer or a reverse primer that is a nucleic acid molecule selected from the group consisting of:

Forward primer (base position of SEQ ID NO:56)	Reverse Primer (base position of SEQ ID NO:56)
79-96	861-844
184-201	531-514
310-327	768-751
858-875	2042-2025
1053-1070	1619-1602
1278-1295	1913-1896
2011-2028	2757-2740
2110-2127	2493-2476
2305-2322	2682-2665
2744-2761	4135-4118
2942-2959	3628-3611
5257-5274	6471-6454
5440-5457	5973-5956
5707-5724	6231-6214
13261-13278	13629-13612
13384-13401	13731-13714

primers shown in the Tables above.

89. (new) A kit for identifying an H11 or H35, and an O157 serotype of *E. coli*, comprising:

(a) at least one primer according to claim 75 and

(b) at least one nucleic acid molecule selected from the group consisting of:

wbdN (nucleotide position 79 to 861 of SEQ ID NO: 56),

wbdO (nucleotide position 2011 to 2757 of SEQ ID NO: 56),

wbdP (nucleotide position 5257 to 6471 of SEQ ID NO: 56),

wbdR (nucleotide position 13156 to 13821 of SEQ ID NO: 56),

wzx (nucleotide position 2744 to 4135 of SEQ ID NO: 56) and

wzy (nucleotide position 858 to 2042 of SEQ ID NO: 56).

90. (new) A kit for identifying an H11 or H35 serotype of *E. coli* comprising a nucleic acid molecule according to claim 70 and the nucleotide sequence of SEQ ID NO: 57.

91. (new) A kit comprising a nucleic acid molecule according to claim 70 and one or more nucleic acid molecules comprising SEQ ID NOs: 56 or 57.

92. (new) An isolated and purified nucleic acid consisting of 10 or more nucleotides of SEQ ID NO: 13.

93. (new) An isolated and purified nucleic acid consisting of 20 or more nucleotides of SEQ ID NO: 13.